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[&]quot;Would recommend the Paul System to any one desiring a perfect working heating system."

—E. S. Fike, 304 First National Bank Building, Chicago.



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"Over two years' use. We have never regretted putting it in."- Nor'hampton Cullery Co., Northampton, Mass.

OR many years steam has been used for heating purposes, and it has been supposed that presure varying from 100 pounds downward was absolutely necessary to achieve the desired result. But the constant tendency of recent practice has been towards a reduction of pressure. So far, indeed, have the results justified such action that it is now generally conceded that the highest results in efficiency, economy, and hygiene are to be attained by those of steam at or below atmospheric pressure.

"From the results of my investigation on the subject, I am convinced that steam circulated at atmospheric pressure, will give you an economy of from 10 to 20 or 25 percent over steam circulated at about 5 lbs. pressure above the atmosphere."—Prof. J. H. Kenealy, Woshington University, St. Louis, Mo.



"We have never had any complaints from the tenants in the

THE construction and proposed plan of operation of nearly all large modern buildings, such as hotels, office buildings, hospitals, theatres, etc., contemplate the installation of a combined power and steam heating plant. The present demand for elevator and electric lighting service, and for many other purposes for

to exercise a very large amount of skill and ingenuity is planning a combination system of power and heating, to the end that the steam produced upon the premises may be utiized with the utmost economy, and efficiency.

"The system (in the Portland Block) paid for itself in about two years,"—Geo W. Cobb. Real Estate, Chicago,



"The Paul System is all right."-The Youth's Companion, Boston, Mass.

THE question of net profit to the manufacturer is always important. In the close competition of modern industry, economies effected by the adoption of modern machinery and processes bear closely upon the upon the employment of modern methods. The continuation of antiquated practices entails great loss of net profit. Have you adopted modern methods in your steam plant? If not, will you investigate?

"We consider the investment a good one."—Rogers & Brother, Waterbury, Ct.



"The System has proved entirely satisfactory, enabling us to heat
the building more thoroughly and much easier than ever before."

—Shepard, Norwell & Co., Boston, Mass.

THE question, then, is this: "By what means or method shall the most excellent qualities of steam as a heating agent be realized, and the wasteful practice of forcing it to points of use by pressure be supplanted, to the end that such steam shall be conveyed or caused to flow through systems of piping to coils and radiators, for the purpose of there releasing its mild and healthfull heat, and to accomplish this highly desirable result with the utmost economy and efficiency?"

"We find it is very reliable."

-McKinney Mfg. Co., Allegheny, Pa.



BACK PRESSURE



"We can heat our building quicker, and use our exhaust steam without back pressure,"—Macuilar, Parker & Co., Boston.

"The Paul System enables us to have a better circulation of steam than we could otherwise have."—Wisconsin School for the Deaf, Delavan, Wis.



A FEW FIGURES



"Our exhaust steam heats the house without one dollar's cost."

-William G. Leland, Grand Hotel, New York.

S there yet remains a large number of plants wherein no attempt has been made to utilize the exhaust of engines, pumps, etc., for heating purposes, it may be pertinent here to assert that in many cases the entire excess of winter coal consumption over that of the summer season represents pure and unadulterated waste. The loss of one cent's worth of exhaust steam per minute amounts to the astonishing total of \$1,080 during one heating season, or say 5% on \$21,600 of in-

"There is little difference between the winter and summer coal bills."—Thayer & Jackson Stationery Co., Chicago.



"We could not possibly get along without it and heat two factories with one boiler, which is what we are now doing." -C. S. Pierce. Brockton. Mass.

sented, many expedients have been resorted to, and many methods have been tried. A careful consideration of this question will show that the chief obstacle or impediment to the complete circulation of steam is to be found in the fact that at starting the whole system is full of AIR, and that a greater or less amount of air is always present therein. It is a wellknown fact that the water usually used for

> "It is very satisfactory." -Reliance Building, Chicago,



IMPEDIMENTS TO SOLUTION



"It gives the most gratifying results."-Theodore W. Foster, Providence, R. J.

of heat. When steam passes into a radiator or coil the and certain sections of radiators while in operation. parts of the coil or radiator, and thus a uniform dissuch circumstances a considerable area of all such coils and radiators is practically worthless as a heat

"The System gives us excellent satisfaction." -New England Bldg., Cleveland, O.



"We congratulate you upon having solved a problem that heretofore has given a vast amount of trouble and expense."

-Powell & Bro., Philadelphia, Pa.

The desired result was at last achieved by the automatic and independent removal of air from the system without pressure, this being accomplished before the steam is admitted; the apparatus being kept continually free of air, and the circulation maintained in each and every radiator by means of the natural decrease in volume of the steam in the apparatus due the condensation; this in turn being governed by the temperature of the air in the space to be warned,—this desired end being attained by the use of the PAUL SYSTEM

"We have found it the most economical device yet installed."

—Supl. Milwaukee Hospital for the Insane.

HYGIENE AND EFFICIENCY

"We are well satisfied with the Paul System."

-Harwell & Richards Co., Providence, R. I.

THE heating apparatus has no openings into the apartments to be warmed, and consequently the air in the

rooms is not vitiated by foul gases escaping from the air valves, and there are no drippings to stain carpets or ceilings. The temperature of the steam is constant, no pressure being required to circulate it, and the disagreeable dry, "burnt" air in rooms is entirely avoided. There are no volumes of air locked in portions of coils or radiators, but every square inch of heating surface is rendered uniformly efficient while steam is being used in the heat distributer. Wherever EXHAUST STEAM is available, it is utilized under the System WITHOUT CAUSING BACK PRESSURE at the engines or pumps, and this great WASTE is made as valuable as the same quantity of live steam direct from the boiler.

"Has been working very satisfactorily."—Illinois Trust and Savings Bank, Chicago.



"It has shown a marked saving."—Turner's Falls Paper Co., Turner's Falls, Mass.

TN automatic air valve is placed on each radiator, A coil, or indirect stack, and connected with an air riser. The air risers are run beside the steam risers and brought together at some convenient point in the boiler or engine room, and there connected to the exhausting apparatus of the PAUL SYSTEM. Before the steam is turned on the plant the Exhausting Apparatus is put in operation, and the air contained in all the heat distributors is quickly removed, and each radiator, coil or stack in the building is maintained in the best possible condition to receive steam.

"We feel safe in earnestly recommending it."—Jennie & Mundie.

Architects, Chicago.



"It has effected a large saving in fuel."

—Albany Card and Paper Mfg. Co., Albany, N. Y.

PoN opening the supply valve the steam flows naturally and without pressure into the radiators, coils, etc., and its heat closes the automatic air valve. In the process of condensation a great deal of heat is given off by radiators in the form of "radiation" and the volume of steam is being constantly creates a constant flow toward the heat distributor which is counteracted by an additional steam supply. Means are also provided for the subsequent removal of air as rapidly as it collects, and therefore all the at all times in a uniformly efficient condition to per form their office.

"The exhaust steam circulates without back pressure, and condensation returned at a higher degree of temperature."—Rogers & Hamilton Co., Waterbury, Ct.

"It has worked to our entire satisfaction."-Robert MacKinnon, Little Falls, N. Y.

seven years, and stands to-day the most economical method of heating by steam. It is installed upon over four million square feet of heating surface in office and public buildings, theatres, hotels, private residences, mills, and factories throughout the United States and Canada. The System is applicable to all kinds and forms of apparatus for heating or drving by steam, and has effected a great advance in economy and efficiency in the operation of Drving Cans, Slashers, Paper Drving Cylinders, etc. The System can be applied to existing plants as well as installed in connection with new work. We respectfully invite your examination of the following pages showing

"Avoided the necessity of putting in practically a new steam plant."—Mead & Coe, Chicago,

"The System is giving us excellent satisfaction." - American Tool and Machine Co., Boston Milis.



Advantages in the USE of the

Paul System

243 243

1st. A positive and uniform circulation of steam without pressure above that

2d. Utilizing the heat of steam at low temperatures, thereby gaining great 3d. Warming without impairing the quality of the air in the rooms.

5th. A sealed system: no leakage no smell or dripping from air valves.

6th. All heating surface is held in the best condition to operate promptly

8th. The water of condensation returned quickly and economically at highest temperatures.

9th. Less steam used, less coal burned to heat a given space.

"We know the System to be economical"-Carson, Pirie, Scott & Co., Chicago.





1	Test of Paul Heating System at Ohio Unive	ersity.
T T		
949	With System.	Without System
IYII	Date of tests	March 27, 1897,
ry 173	Duration of tests	12 hrs.
TIT	Barometer	29.41
10	Gauge Pressure on main before passing pressure regulator 21.	26.4
TI	Quality of steam	99.23
5 5	Gauge pressure on main after passing pressure regulator 0.	6-2
	Pressure on air line vacuum 6.8	
U	Average temperatures, degrees Fahr., external	33.04
	Average internal temperatures, 6 rooms, 11 thermometers 71.55	71.75
Q Q	Total weight of return water	9,578
240	Temperature of return water	207.
0	Steam used by exhauster per hour	
917	B. T. U. per hour for heating	783,490
0	Per cent. saving in B. T. U. 14.4% Per cent. saving by weight of steam 14.8%	

"We have saved a great deal of engineer's and janitor's time."—George R. Read, Real Estate, New York City.

As an illustration of the results accomplished by the installation of the PSYSTEM in connection with Blower Heating Agentatus, the following taken from an actual case may be clied—

In the Matter of Heating performed by these stacks containing in all 21.00 boas fear of these stacks containing in all 21.00 boas fear of the containing in the performed by the containing in the performed by the containing in the performance of the

Blower

Heaters

Back pressure on engine to force exhaust steam into

4 the

Temperature of air from heater 130° (18° outside).

Data secured after the introduction of the Paul System.

Back pressure on engine 0 18° outside).

500 H. P.

"It has saved us a ton of coal levery day since we put it in."— Pepperell Card and Paper Co., East Pepperell, Mass.

********	KIN THE	EKK S	**	

Milwaukee, March 4, 1897.

Mr. S. J. Brockman, Com'r of Public Works, City,

Dear Sir,—Appended hereto is report of test of heating system operated with pressure and partial vacuum, or with Paul System disconnect-

Result, you will observe, is a saving of 17.24 per cent. of coal consumption on February 25, over that of February 24. with an average temperature of 6.67 degrees lower, and an increase of 2.95 H. P. of work done by electric light and elevator blant.

Respectfully submitted, ROB'T ANDERSON, Supt. of City Hall-

st of	Heating	on	Feb.	24 and	25,	Milwaukee	City	Hall.
	Ė		9 2			.		

Number of hours run.	Outside Temperature in degrees Farenheit.	Pressure in pounds on Heating System,	Work done by Elec. Light Plant in H. P. per Hour.	Work done by Eleva- tor Plant in H. P. per hour.	Coal consumed in

	Pebruary	/ 24, Pau	I Systen	Disconr	rected.	
Maximum		35.5	2.75			
Minimum		5	2			
Totals and Averages	24	18.81	2.25	30.5	19.5	15,600
	Pebrua	y 25, Po	ul Syste	m Conne	cted.	
Maximum		18	25			

 "The System is giving perfect satisfaction, both in manner of operation and economy of same." - Morgan Envelope Co., Springfield, Mass.



35 Pearl St.

ING CLOTH OR YARN: LOFTS, DRY KILNS,

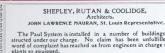
Paul System Offices: PHILADELPHIA,

MUTUAL LIFE BUILDING KANSAS CITY. ST. LOUIS, MO ..

American Bank Blde. Chemical Blde.

"I consider it a good investment."-F. D. Gray, President of the First National Bank of Chicago

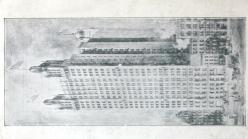




The Paul System is installed in a number of buildings con-structed under our charge. No claim has been unfulfilled, no word of complaint has reached us from engineers in charge of the

IOHN LAWRENCE MAURAN.

Paul System Installed



ROW BUILDING,

ORK